

# Education & Public Outreach

**Lars Perkins**

Chairman

Education and Public Outreach Committee

NASA Advisory Council

8 March 2012

# Topics

- Who we are
- What We've Done
- Public Outreach
- Education
- Moving Forward



Richard Garriott



Dwayne McCay



Michael Bostick



Peter Shankman



Iannis Miaoulis



Erika Vick



Scott Parazynski



Doug King

WHO  
ARE WE?



Lars Perkins



Stephen Pearse

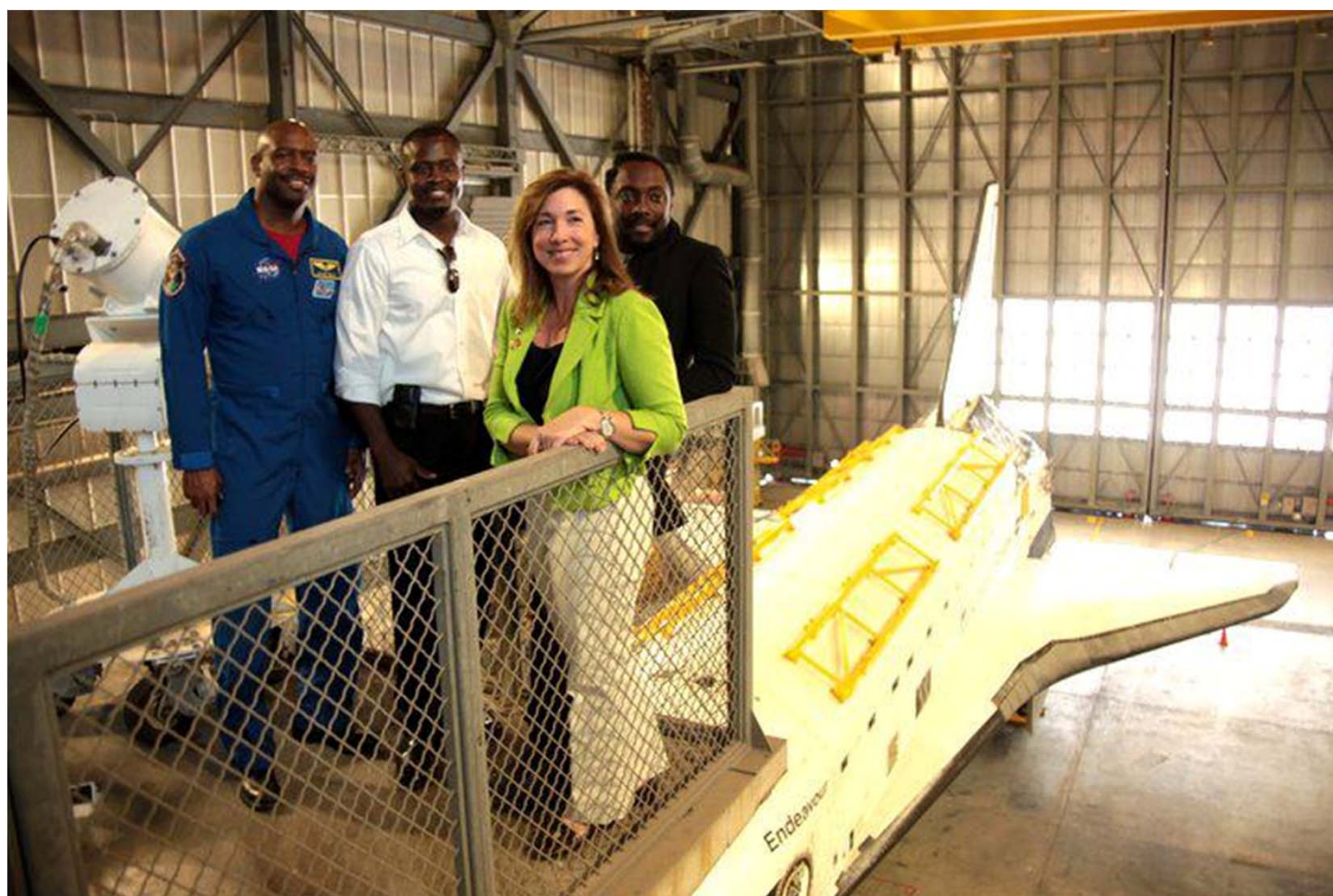


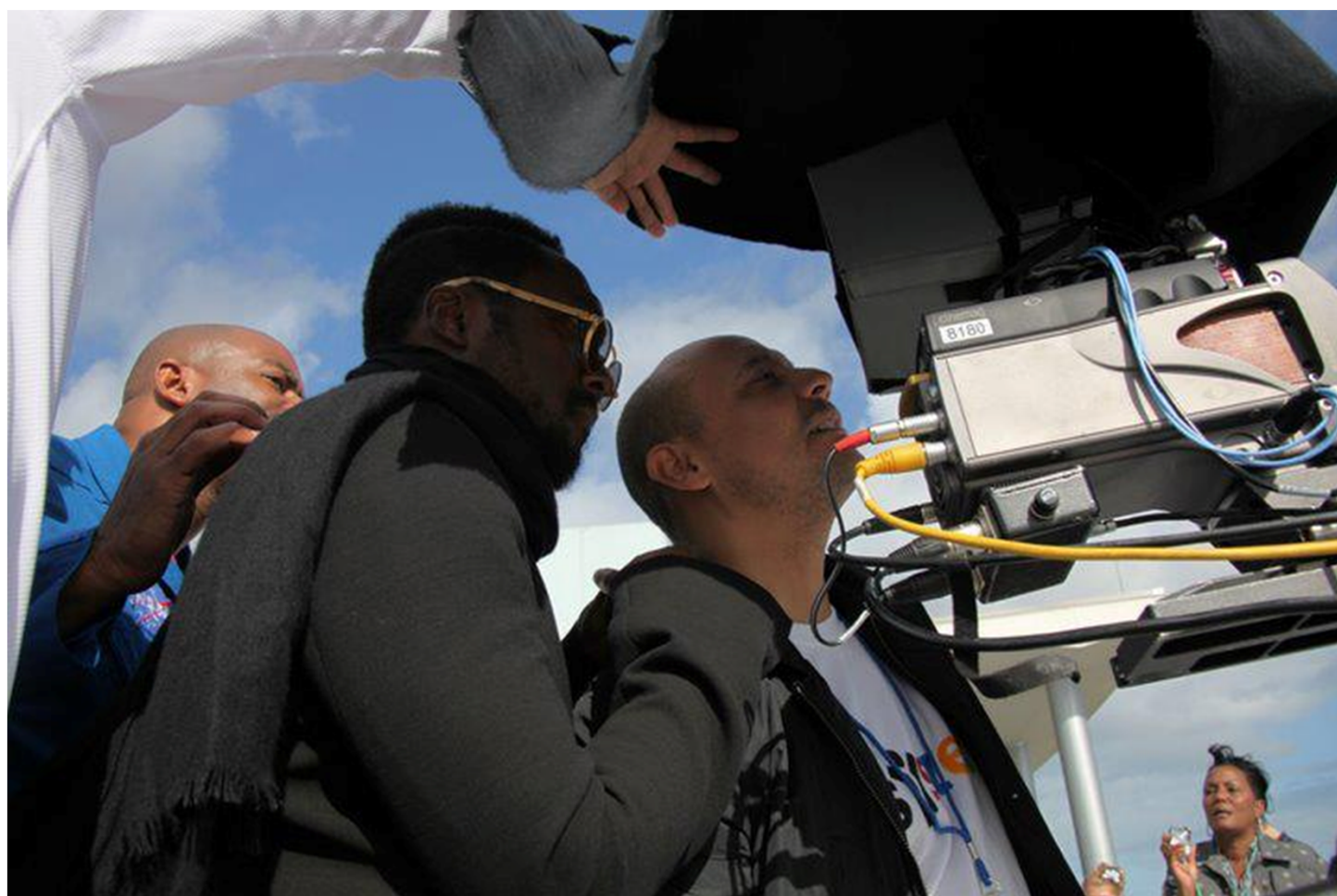
# What Have We Done?

- SEP 8: Education Brainstorm @ JPL
- NOV 26: MSL Launch Event
- DEC 9: NASA Future Forum - Seattle
- MAR 5: DC meeting
  - Michael Bostick
  - Doug King
  - Richard Garriott
  - Dwayne McCay
  - Steve Pearce
  - Michael Bostick







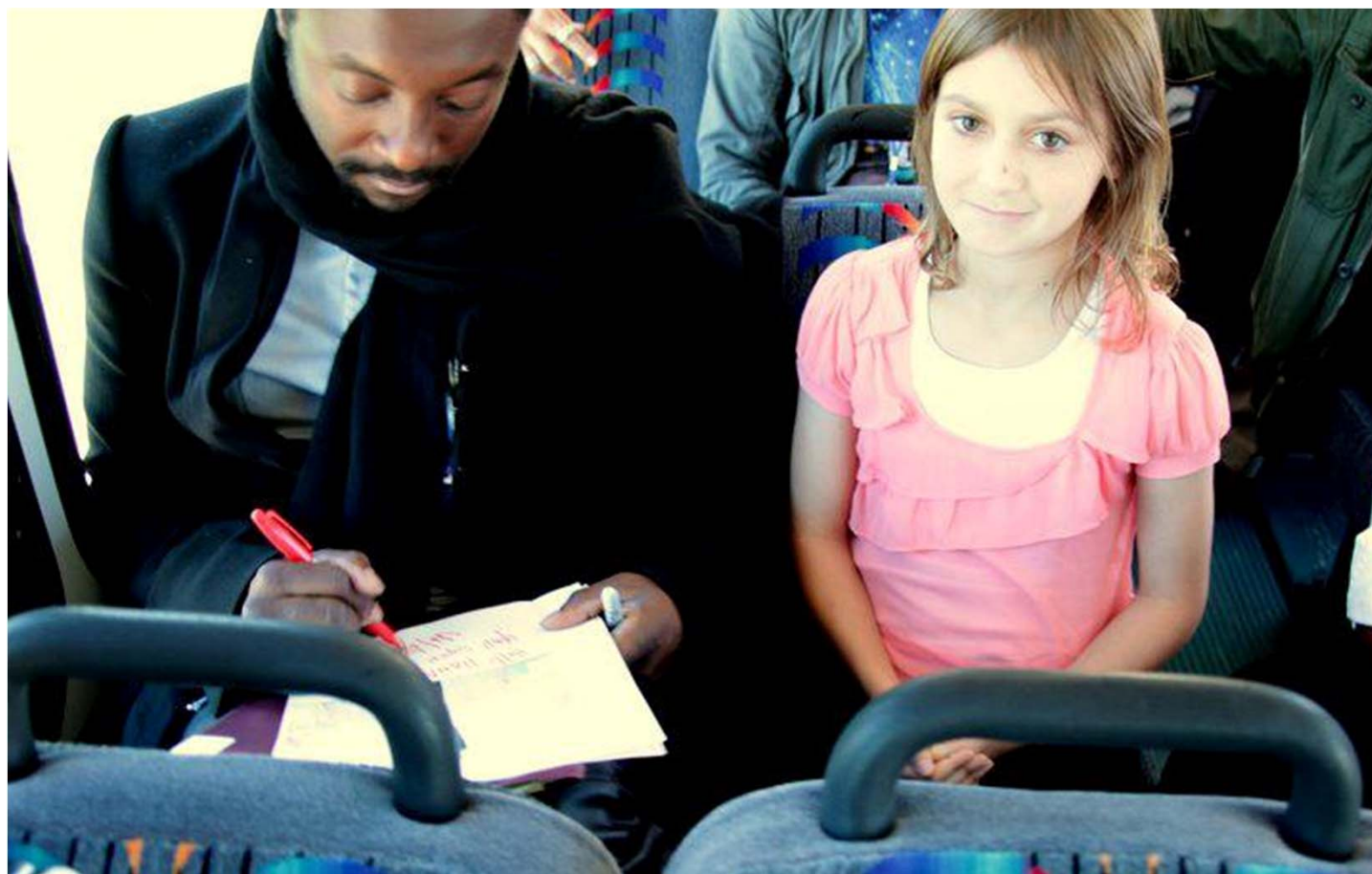






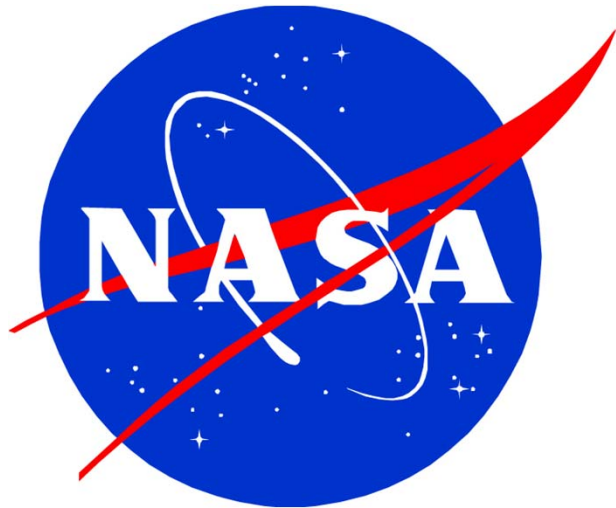






# The Taxi Driver Problem

This equation is false

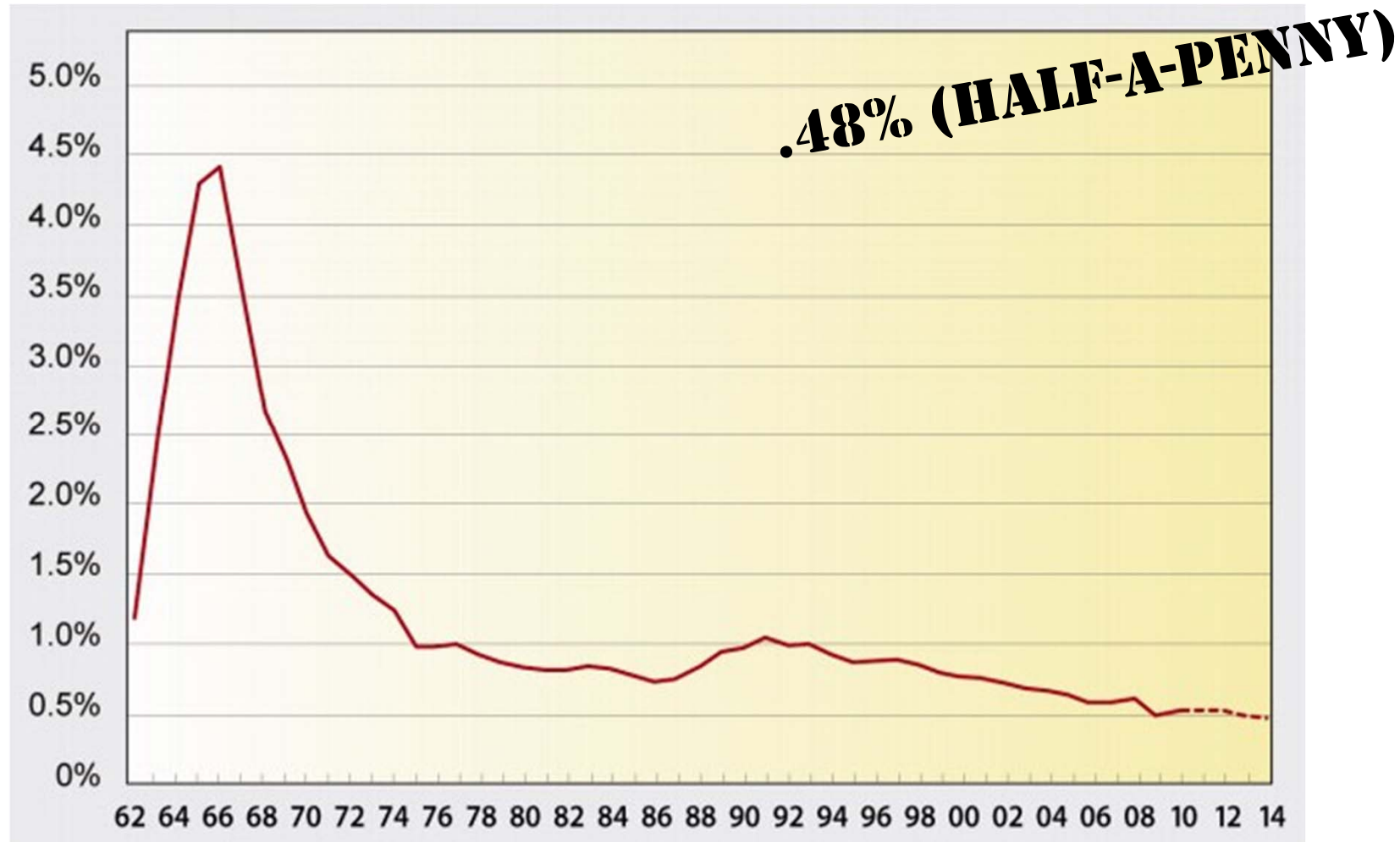


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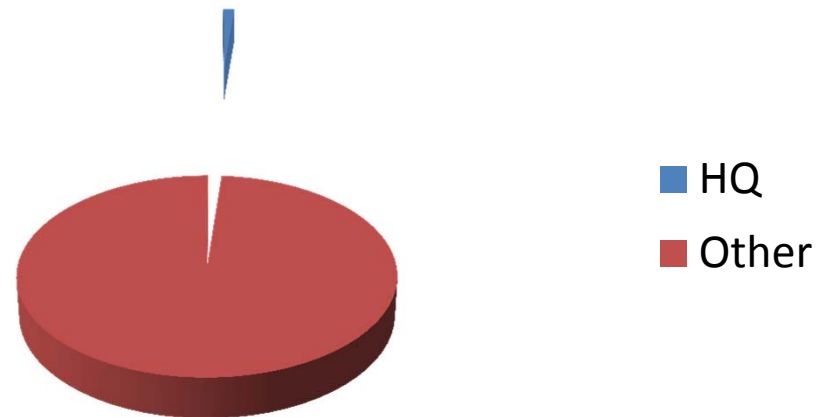
# Budget



# Budget

- EDUCATION (Leland Melvin)
  - \$100 mm
- PUBLIC OUTREACH (David Weaver)
  - \$5.8 mm

**Public Outreach Spending**



Speak with One  
Voice

It's Not Marketing



# It's not marketing ...

- Country is in educational crisis
- We don't have enough engineers and scientists
- NASA Inspires
- NASA innovation drives global competitiveness and economic growth

*Light must come out from under barrel ...*

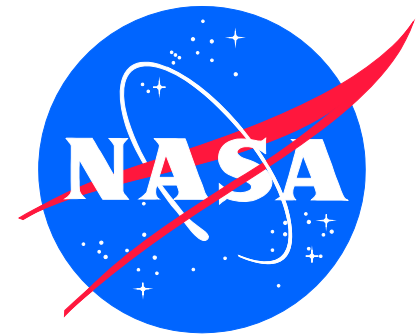
Sep. 12, 1962

“space is there, and we're going to climb it, and the moon and the planets are there, and new hopes for knowledge and peace are there.”

“an act of faith and vision, for we do not now know what benefits await us.”

# NASA.gov

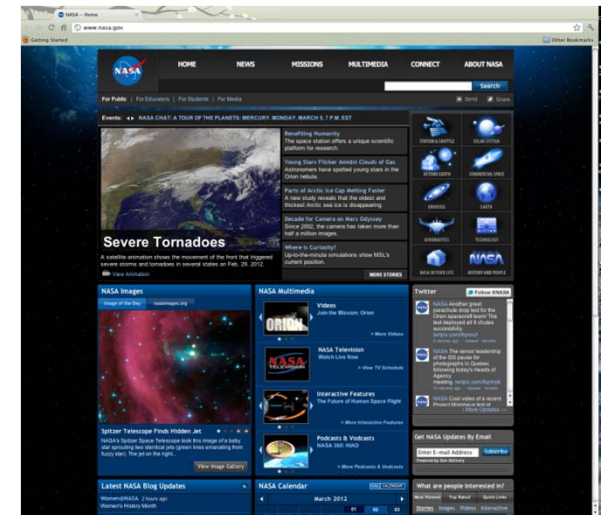
- [www.nasa.gov](http://www.nasa.gov) set a record for traffic to the site in 2011, receiving more than 150 million visits. The site tied a record for customer satisfaction.



- Handled the biggest online event in NASA's history, the STS-135 mission. More than 562,000 people watched launch live on NASA.gov in HD. About 26,000 of those streams were going to smartphones and tablets.

- Web team recently released its first app, a Facebook game called "Space Race Blast Off". So far more than 80,000 people have played more than 20,000 games.

- At the end of 2011, the site comprised 185,974 web pages and 516,885 associated files.

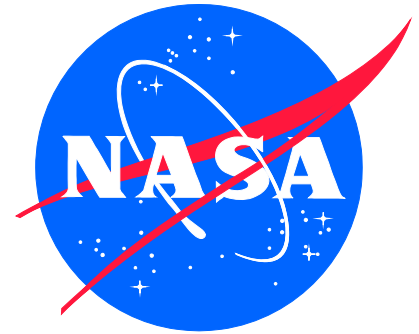


# NASA Television

- Public and Media Channel are now fulltime HD
- Recently transitioned to a satellite that provides expanded coverage and provides complete coverage in Alaska and Hawaii

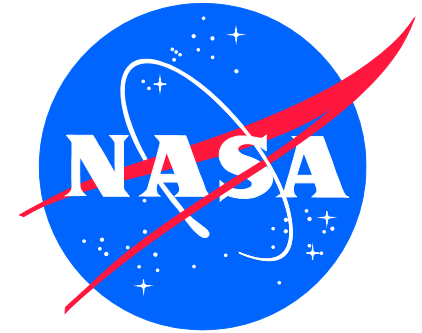
## NASA TV YouTube Channel:

- In operation since 2008
- 92,126 subscribers
- 6,053,425 people have viewed channel
- 29,161,035 – number of times videos on channel have been viewed
- 1,240,785 – most viewed video – “STS-129 HD Launch”





## Social media



### NASA Facebook Page – Week of Feb. 27



- Total 'Likes' the past week: 766,835
- Friends of fans (unique people who are friends with someone who likes the NASA page): 159,688,737
- People talking about NASA on Facebook (like our page; likes, comments or shares a post, etc.): 33,412
- Weekly total reach (unique people who have seen any content associated with our page): 573,544
- Weekly page engaged unique users (any click or story): 72,047

### @NASA Twitter

- Followers this week: 1,925,604 – continues to grow
- Mentions this week: 5,207



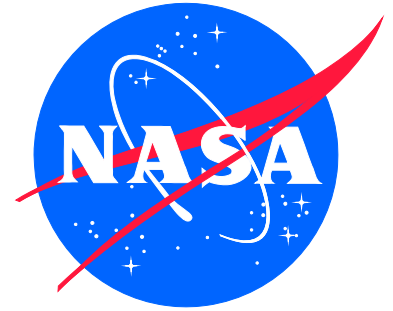
### @NASATweetup Twitter

- Followers this week: 33,533



**Other sites.** Recently started a Google Plus page. Also have presence on other sites such as Foursquare, UStream

# Entertainment/Multimedia Collaborations

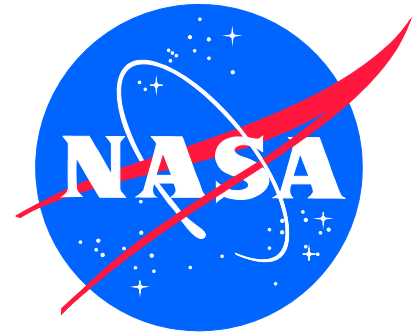


- During 2011, NASA worked on over 80 documentary projects, 20 notable television programs and 20 feature films, including *Transformers 3*, *Men in Black 3*, and *The Avengers*. “On orbit” ISS screenings of *Mission Impossible 4* and *John Carter*
- Recent NASA collaborations in TV include astronaut appearances on *The Late Show with David Letterman*, *The Colbert Report*, and *The Daily Show* and special NASA segments or storylines on *The Big Bang Theory*, *American Idol*, *Sesame Street*, *Extreme Makeover Home*, *Dancing with the Stars* and *Mythbusters*.
- Paul McCartney, Beyonce, Elton John and Michael Stipe did wake up calls for STS-135. Norah Jones sang *America the Beautiful* at Congressional Gold Medal. Will.i.am of Black Eyed Peas at MSL launch and event connected with landing
- PSAs: Stephen Colbert on medical benefits of ISS research; tie-in to *Arthur Christmas* movie re: technology
- Collaboration with Rovio on new Angry Birds space game targeted to reach 1 billion people by spring.
- NASA personnel do online chats and events, e.g. Cady Coleman on Oprah’s site



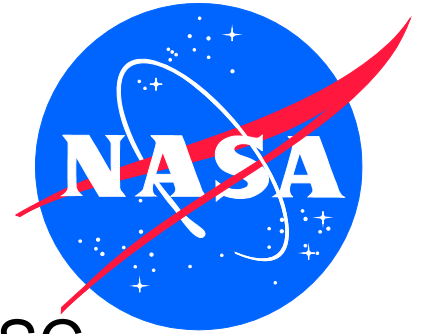
## Strategic Partnerships

- Successful partnership with LEGO, including highly attended “Build the Future” events in conjunction with the final Space Shuttle launches and the launches of JUNO and GRAIL. Special Lego web site dedicated to space – [www.legospace.com](http://www.legospace.com)
- Third Rock Radio – America’s Space Station launched in December with RFC Media. Web-based radio program features music for 18-34 year olds interspersed with news and information about NASA and the space program. Financed through corporate sponsorships at no cost to NASA.



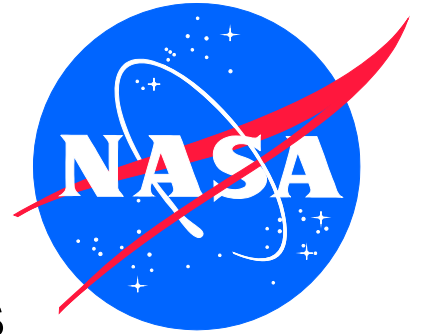
## **Guest Operations**

- Final Space Shuttle launches - 40,000 guests per launch at seven viewing sites.
- Guest operations for ongoing ELV launches at KSC including 10,000 each for Juno, GRAIL, and MSL. Also worked NPP launch at Vandenberg.
- Working with commercial partners on future launches
- Events: Kennedy Center concert on Kennedy Legacy; Congressional Gold Medal Ceremony; 50<sup>th</sup> anniversary of Alan Shepard's suborbital flight.



## **Astronaut Appearances**

- Coordinated D.C. visits of Space Shuttle and ISS astronauts. Arranged visits to HQ, NASM, local universities, military hospitals, embassies, other agencies, and Congress; planned 2011 Astronaut Candidates event.



## **History**

- NASA Chief Historian responsible for preserving records in many formats for NASA's entire history.
- Manages history/archival operations at 9 centers
- Publishes about 4 books per year; expanding availability of catalog through e-books and digitization.

## **FOIA**

- Eliminated backlog on requests last year.

## **Exhibits**

- Developing coordinated exhibits for upcoming events to include: National Space Symposium, Technology Day on Hill

## **Speakers Bureau**

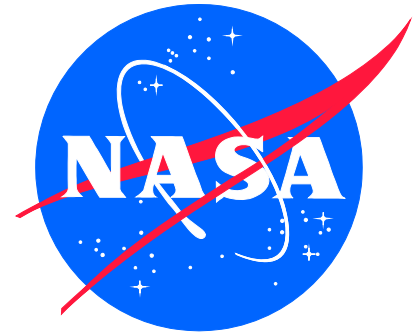
- 2011, NASA Speakers Bureau received > 2100 requests.

## **Public Inquiries**

- Processes about 1 million inquiries/year



# STRATEGIC COMMUNICATIONS AND GOVERNANCE



Communications Coordinating Committee  
working on a coordinated model with buy-in of  
Executive Council to:

- \* work more strategically
- \* be smarter about using our limited  
resources and
- \* get the most out of our  
communications tools and the time of  
our leadership.

# How do we fix it?

- We can't be a federation of MDs and Centers
- We must be one NASA
- One Vision → Mission → Strategy
- We must speak with one voice
- We must reinforce strategic messaging
  - Inside
  - Outside

*Clear, Consistent, Concise, Context ...*

# Vision → Mission → Strategy

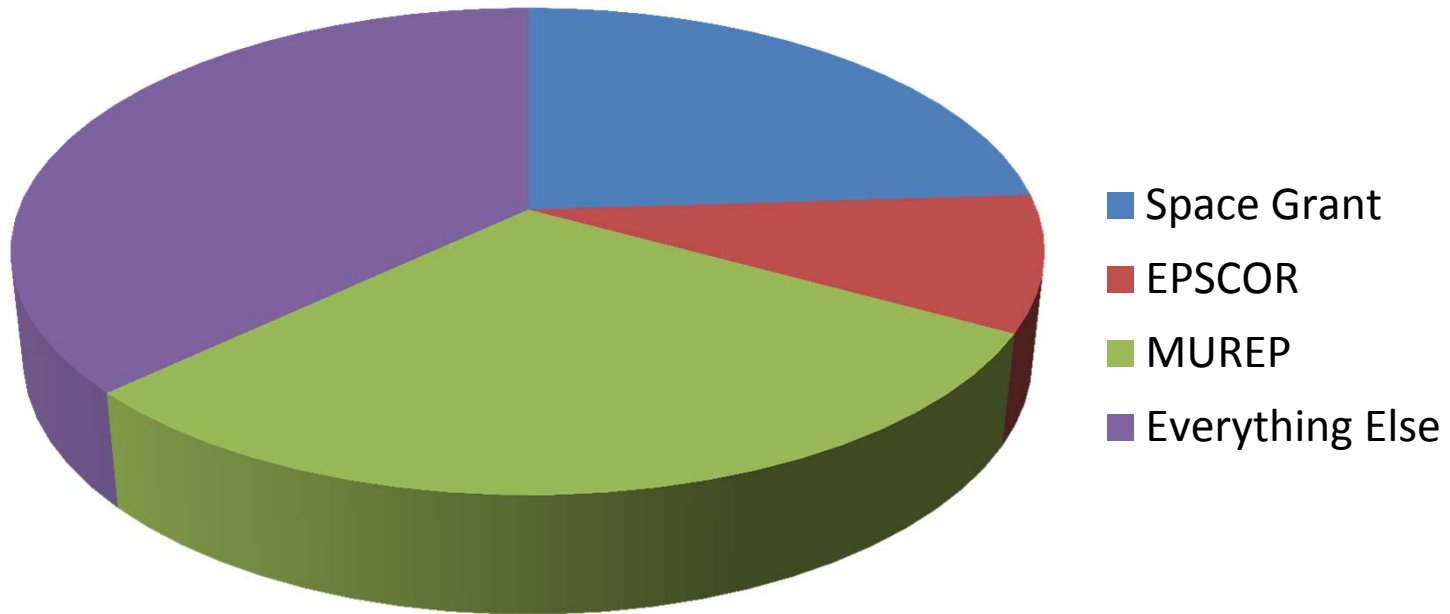
- **Vision:** “To reach for new heights and reveal the unknown so that what we do and learn will benefit all humankind.”
- **Mission:** Ex: “To lead America’s space exploration efforts ever farther into the heavens, both robotically and with human explorers, including helping humanity spread beyond the confines of the earth.”
- **Strategy:** (decadal goals, each accomplishable within and administrative and budgetary horizon, each beneficial and inspirational to the American taxpayer)

# 2013 Strategy

- ISS
- James Webb Space Telescope
- Heavy Launch Vehicle
- Commercial Crew & Cargo

# Education (\$100 mm)

**Spending by Program**



# Education Structure: Program, Project & Project Reporting Attributes

## **Aerospace Research & Career Development**

- Space Grant College and Fellowship Program
- Experimental Program to Stimulate Competitive Research (EPSCoR)

## **STEM Education and Accountability**

- Minority University Research & Education Project (MUREP)
- STEM Education and Accountability Project
  - Formal & Informal Education
  - Innovation in Education
  - Evaluation, Performance Monitoring and Accountability



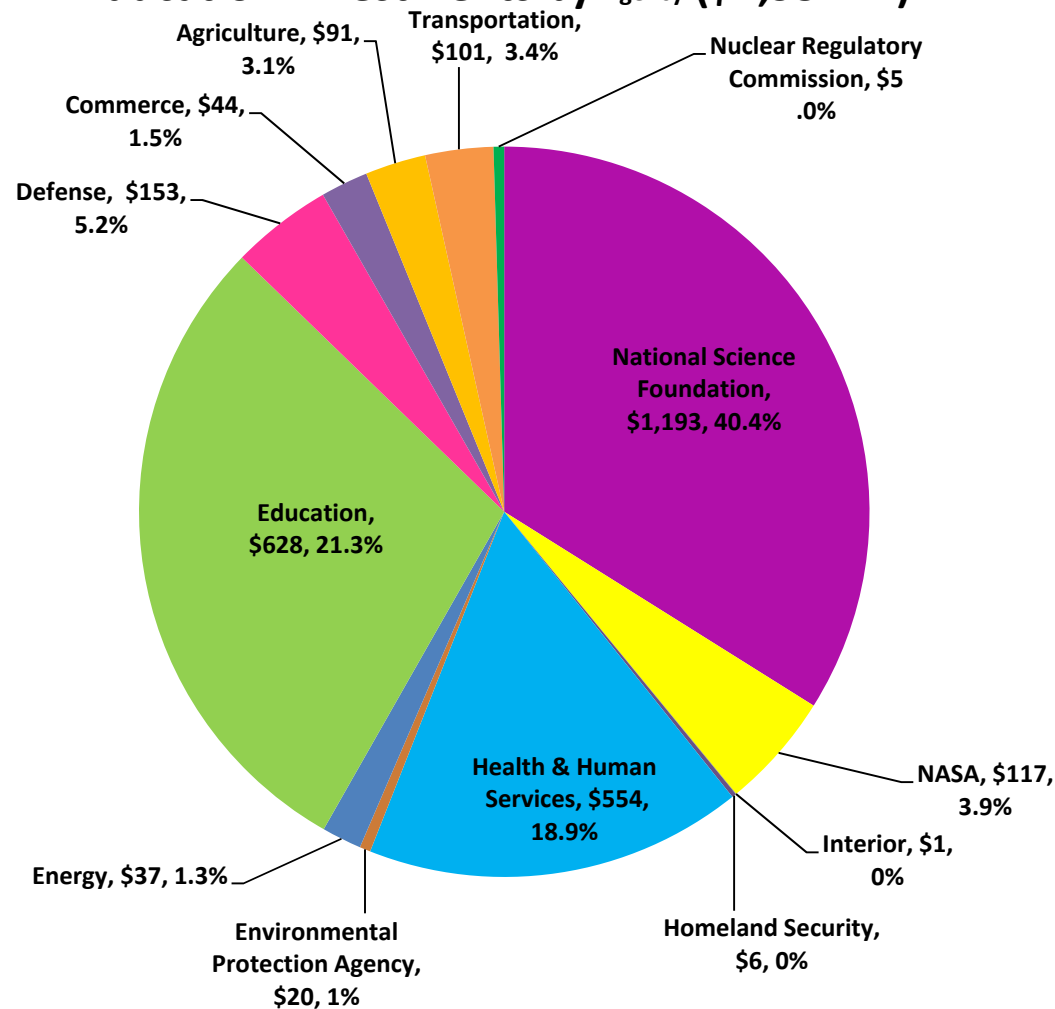
## Description of 5-year Federal STEM Education Strategic Plan

The Strategic Plan will provide common goals, outcomes, and strategies to create a coordinated portfolio of STEM education across the Federal government. The Strategic Plan will require Federal agencies to design and revise their STEM education investments to accomplish the following objectives:

1. **Do What We Know Works** – Ensure Federal STEM investments utilize what is known about effective STEM education and best practices in STEM education.
2. **Learn More About and Share What Works** – Improve assessment and evaluation of STEM education investments to facilitate continual improvement and tracking of outputs and outcomes.
3. **Increase Efficiency and Cohesion** – Ensure Federal STEM education investments are coordinated to efficiently utilize and leverage Federal resources.
4. **Identify and Focus on Priority Issues** – Effective K-12 STEM Teacher Education, Engagement in STEM, Undergraduate STEM Education, and Serving Groups Traditionally Underrepresented in STEM.

# FY13 Federal Investment in STEM Education

## Federal STEM Education Investments by Agency (\$2,951 M)



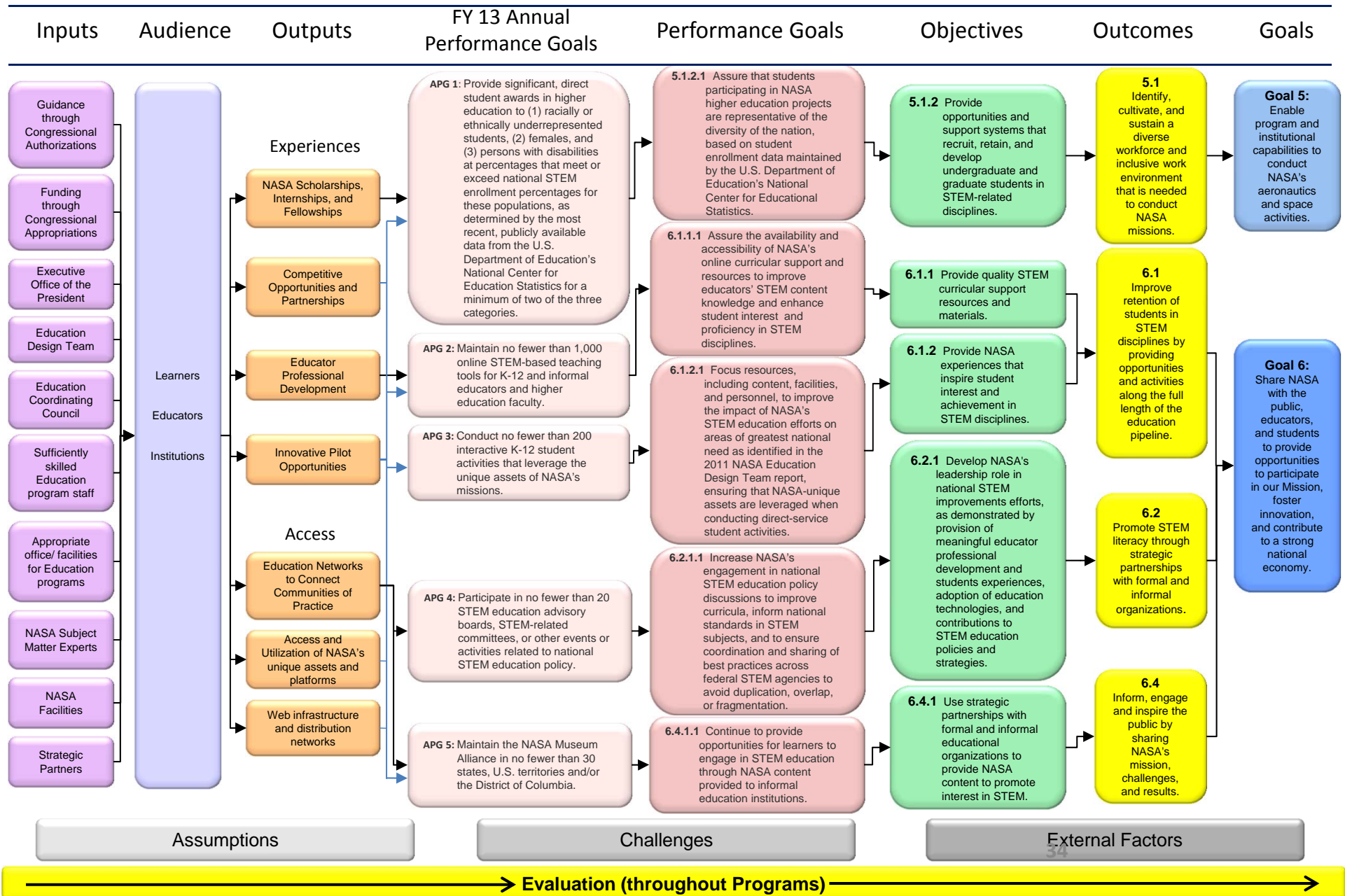
209 investments  
13 agencies

\*Source: Executive Office of the President, Office of Science and Technology Policy,  
*Preparing a 21<sup>st</sup> Century Workforce : Science, Technology, Engineering,  
and Mathematics Education in the 2013 Budget (Feb 2012)*



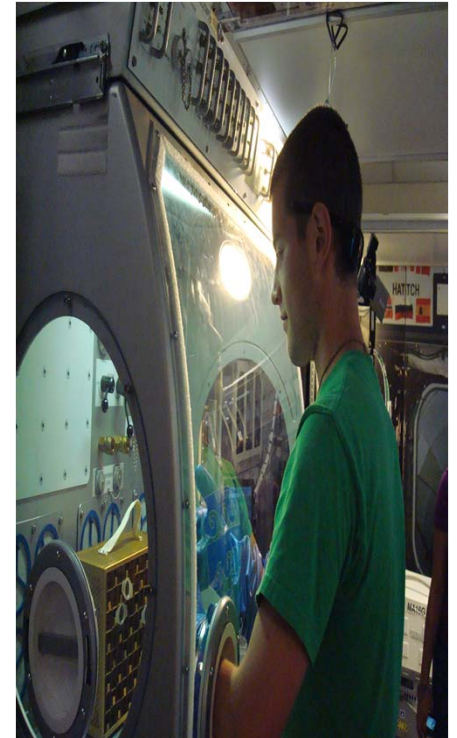
# NASA Education - Model

*Vision: To advance high quality Science, Technology, Engineering and Mathematics (STEM) education using NASA's unique capabilities.*

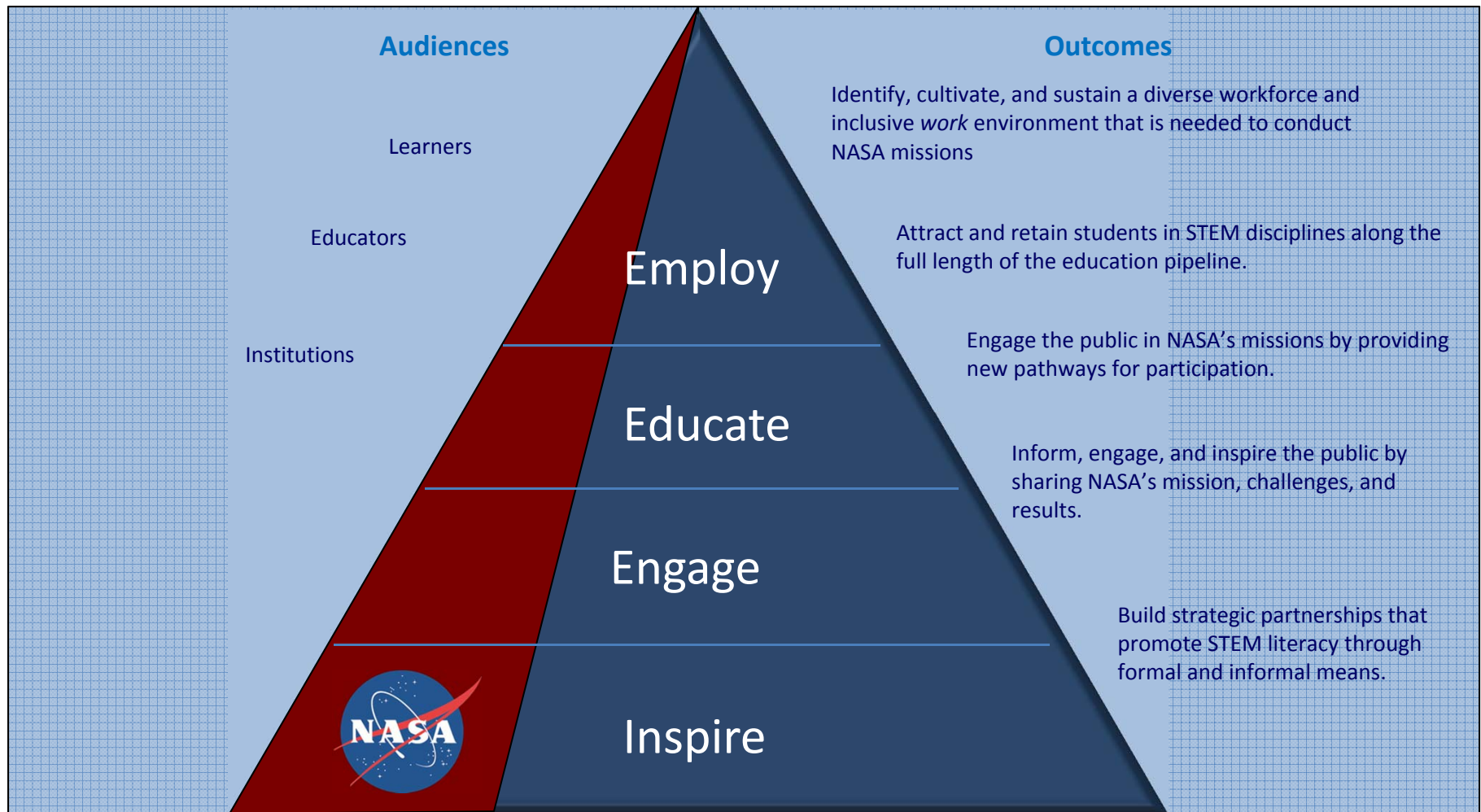


# NASA Education Vision Statement

*To advance **high quality** Science, Technology, Engineering, and Mathematics (**STEM**) education using **NASA's unique** capabilities*



# STEM Education Framework



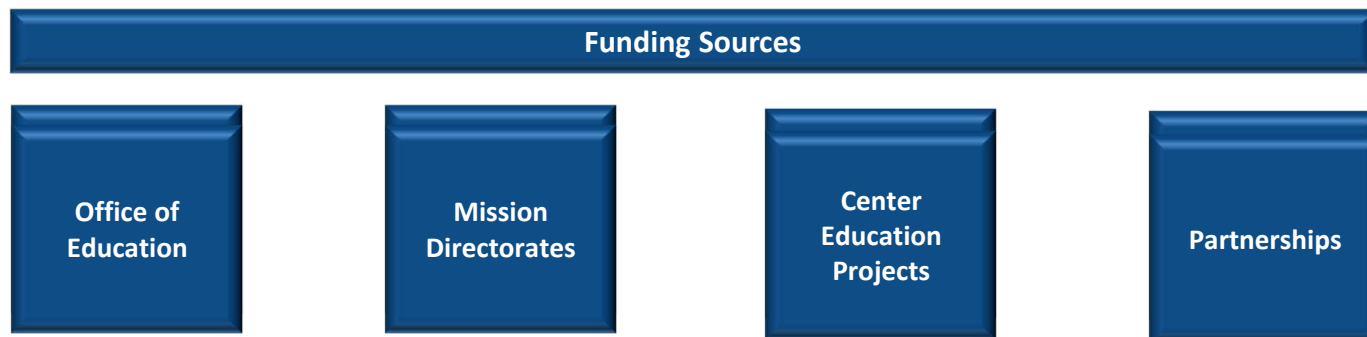
## Operating Principles

Relevance • NASA Content • Diversity • Evaluation • Continuity • Partnership/Sustainability



# Investment Strategies

- All projects will focus on seven consistent investment strategies:
  - ☐ Educator Professional Development
  - ☐ NASA Scholarships, Internships and Fellowships
  - ☐ Competitive Opportunities and Partnerships
  - ☐ Innovative Pilot Opportunities
  - ☐ Education networks to connect communities of practice
  - ☐ Access to and utilization of NASA's unique assets including ISS National Lab, imagery, data sets, facilities and subject matter experts
  - ☐ Web infrastructure and dissemination of networks





# National Space Grant College and Fellowship Program

## Recent Accomplishments

- Over 23,000 Space Grant-supported undergraduate and graduate students participated in scholarships, fellowships, internships and authentic hands-on research and engineering challenges. This represents 64% of the reported participants for the Office of Education.
- 26 percent participation of underrepresented students in Space Grant activities.



## FY 13 Approach

- Provide competitive grant opportunities for consortia in each state, Puerto Rico and D.C.
- Provide hands-on experiences for students to prepare them for future workforce and/or academic careers
- Conduct state-based programs and projects, including pre-college, higher, and informal education.

# Experimental Program to Stimulate Competitive Research

## Recent Accomplishments

- Received 51 proposals in FY 2011 in response to its annual competitive call for research.
- Funded 27 proposals from 20 states with a net value over \$20 million.
- Selected proposals represent research or technology development in each NASA Mission Directorate and the Office of the Chief Technologist.



## FY 13 Approach

- In FY 2013, NASA EPSCoR will issue a competitive call for extramural research awards, and will also support the second year (of three) of the project's infrastructure development awards to build NASA connections.
- The research solicitation will focus on priority research and technology development needs of NASA Mission Directorates and the Office of the Chief Technologist.

# Minority University Research and Education Project

## Recent Accomplishments

- Collaborated with Navajo Technical College to provide student stipends and internships to 15 Native American students, with six students also participating in eight-week summer internships.
- Sponsored the initial Minority Institutions/Community College Reduced Gravity Education Flight Program in which 14 teams or 70 students and faculty participated representing 7 MI's and 7 community colleges.
- Four University Research Center (URC) project participants located in Texas (i.e., Texas Southern Univ., Prairie View A&M Univ., Univ. of Texas at Brownsville, and UTEP) supported more than 170 undergraduate and graduate students.
- More than 340 students, faculty, and other scientific investigators engaged with the URC project published the results of their research and presented more than 235 papers at conferences.

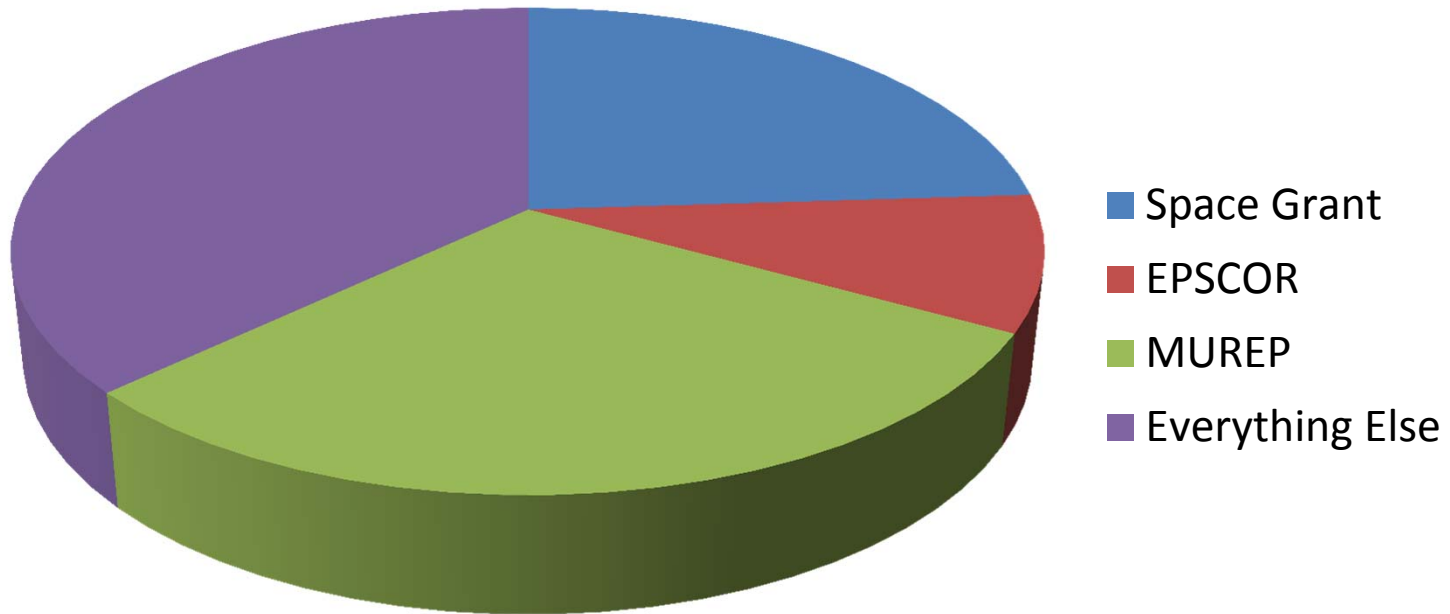


## FY 13 Approach

- MUREP will increase investments supporting undergraduate underrepresented and underserved STEM students, and increasingly target community colleges.

# Education (\$100 mm)

**Spending by Program**



# The Fix

- Clear Education Mission Statement
- Rank Programs
  - Cost
  - Reach
  - Unique NASA capability?
  - Serve NASA's mission?

# EPO Committee Role

- Help NASA organize to find and tell its story
  - Role of OCOMM, PAO
  - Tell story internally and externally
  - Work with David Weaver, Alan Ladwig
- Prioritize and Focus Education Programs



Moving Forward

# Priorities

- Add new members
  - Leaders in communication, design, education (inspiration)
- Work with Leland to Focus & Prioritize Programs
- Comm. Strategy
- Participatory Engagement Project

*... Recommendations to follow*

## Participatory Engagement

- 2008 NASA Authorization Act directed the agency to develop a technology plan to disseminate information to the public and allow them to experience our missions.
- NASA asked to identify opportunities to leverage technologies for multi-media experiences and facilitate participation by the public, the private sector, nongovernmental organizations, and international partners in NASA's missions.
- Plan was submitted to Congress in November 2011.
- The FY 2012 budget included \$1 million to implement the plan. Originally placed within the former ESMD organization, the function now resides within the Office of Communications' Public Outreach Division.
- First step - create a clearinghouse to enable the public to more easily learn about the numerous Participatory Engagement opportunities that already exist across NASA.

# Participatory Engagement

- Build an Interactive Science Playground, in addition to the Reference Library (NASA.GOV)

